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rocket science

joy garnett

introduction by bruce sterling

essay by manuel de landa

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Rocket Science

Bruce Sterling

> "Through whitish swathes of smoke a row of men with packs came on in a straight line. Some fell and lay there, others turned head over heels like shot hares. A hundred meters in front of us, the last were sucked down into the shell-pocked earth. They must have been young troops, still unacquainted with the effects of the modern rifle, for they came on with all the hardihood of ignorance."

In his war diary of 1916, Ernst Juenger took the visionary leap from men to hares. In those gas-bitten, barbed-wire badlands of the First World War, massive artillery shook the earth while mere men scrambled like rodents from trenches to monster shell-holes.

Progress marches on, so we are all hares now. Unlike the soldiers that Juenger shot, we are healthily spared the illusion that an inner strength of blood and guts can ever outmatch steel projectiles.

Subtract the vivid, tender meat of hare and human from the parabolic equations of Nintendo warfare, and you have the lovely martial landscapes of *Rocket Science.*

No enemy, no front, no flags, no braid and no salutes. No trumpets and no parades. No courage, no commitment and no martial sacrifice. The whitish swathes of smoke have become our heroes. Ruptured cruise missiles turn like hares, tumbling vent over nosecone. Chill infrared scopes glow over the shell-pocked earth. It scarcely even looks like war.

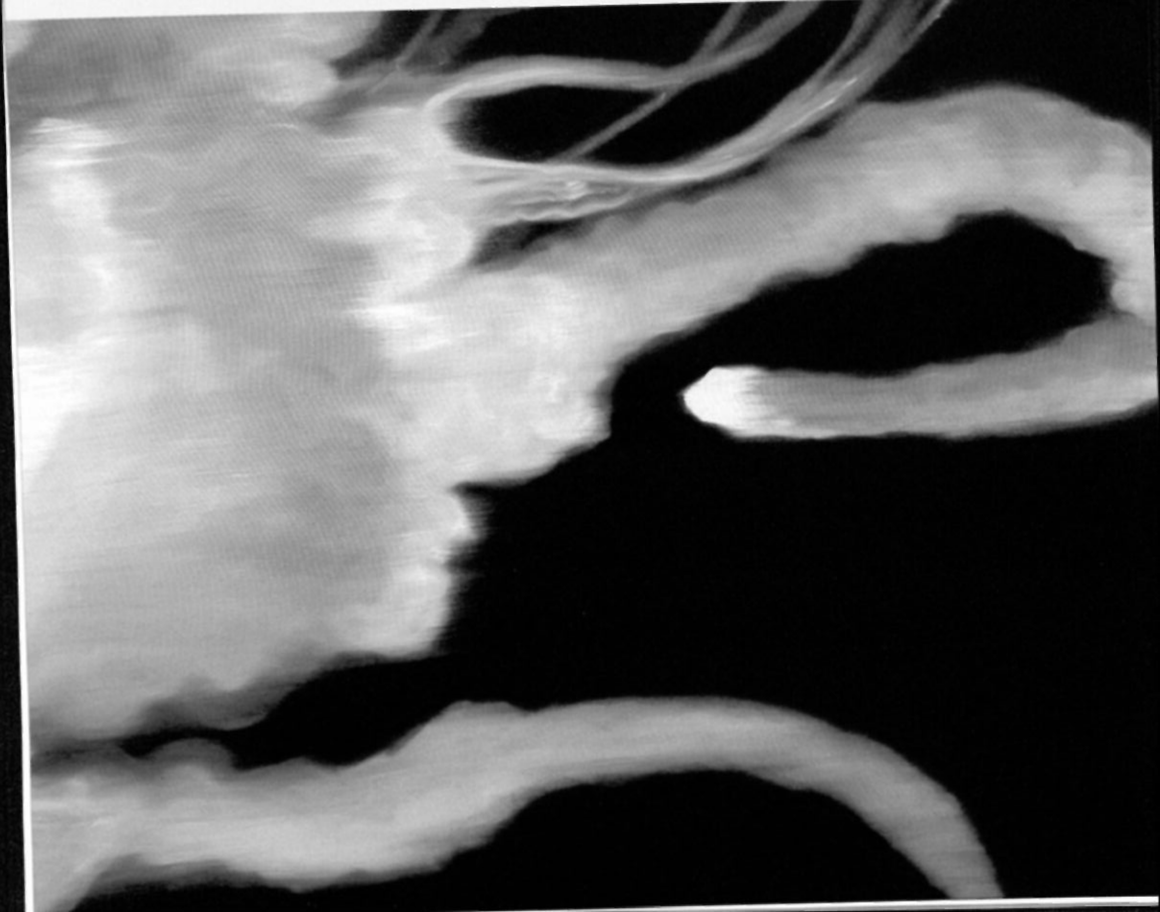
If rocket science kills us, we'll never know why. The explosion hits before the sound of its arrival. It's globalized targeting, satellite-coordinated, so any precise spot on Earth can become an instant Somme. This is military art for our own dear times. If there's something very obviously missing here, it is something we have truly and irrevocably lost with the dead century. Rocket science took that from us. There is no hardihood in ignorance. We just can't have it back, that glorious, murderous human innocence.

> "When once it is no longer possible to understand how a man gives his life for his country -- and that time will come -- when all is over with that faith also, and the idea of the Fatherland is dead; then, perhaps, we shall be envied, as we envy the saints their inward and irresistible strength."

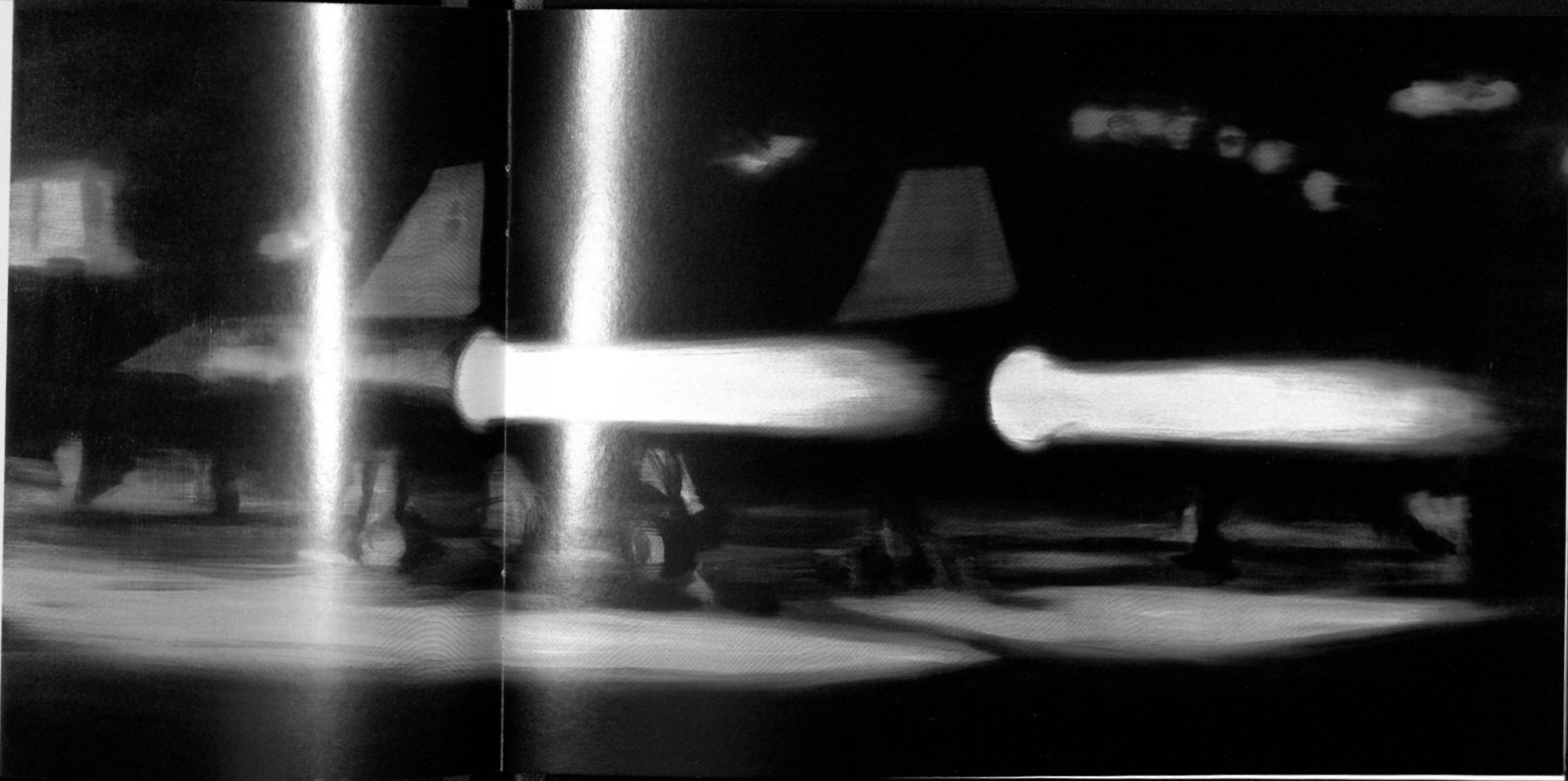
Opposite:
Ariane (1-4), 2000.
Oil on canvas.
Each 17 by 20 inches.

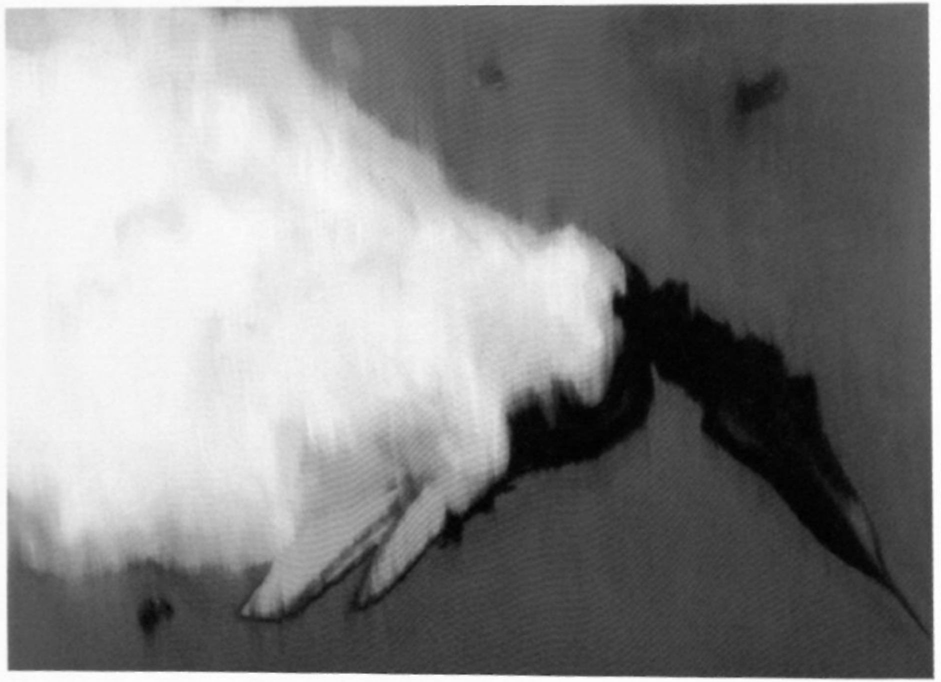
[illegible], Oil on canvas, 38 by 48 inches

1. Disaster [illegible], Oil on canvas, [illegible] inches

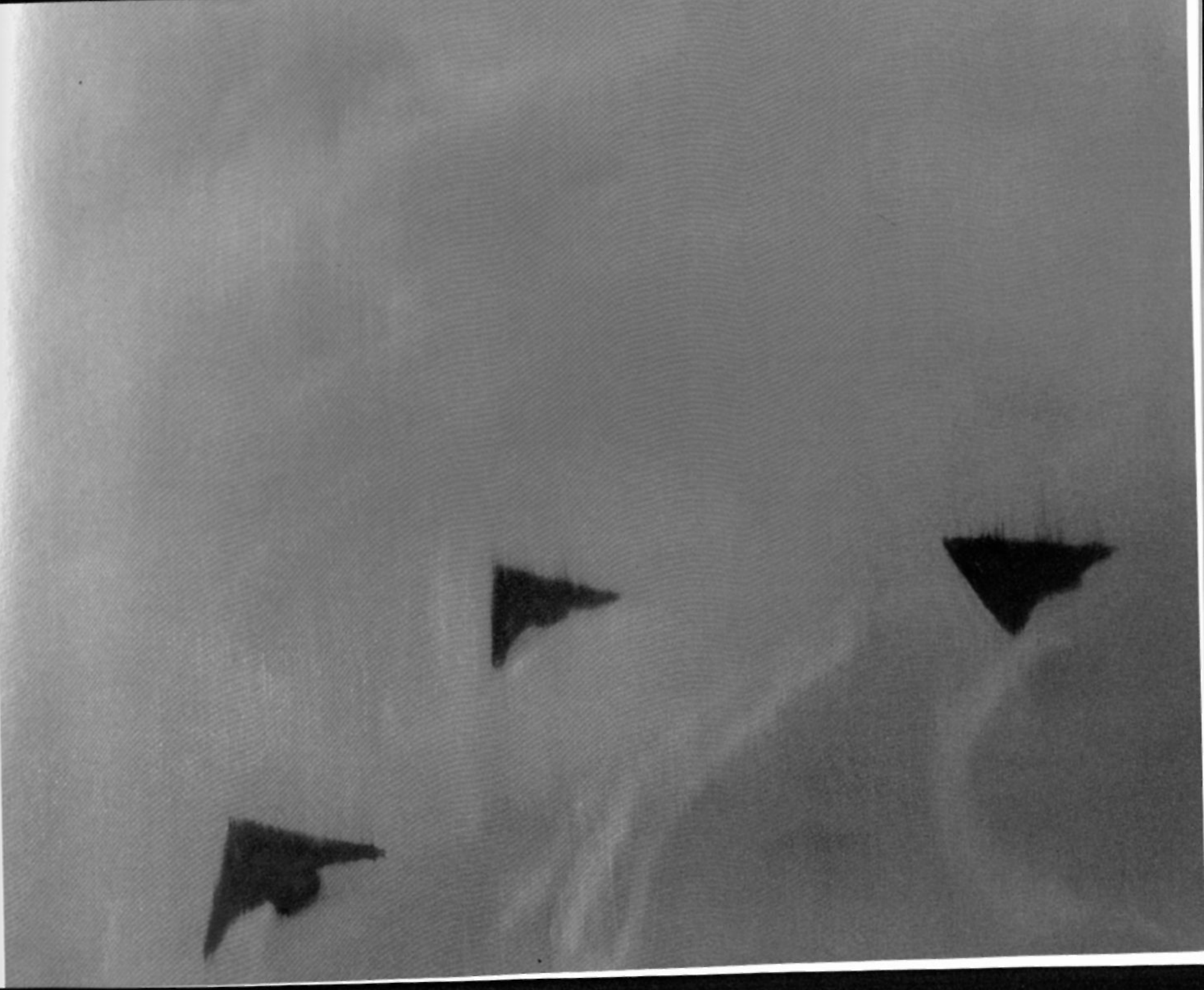


Firing Up, 2000. Oil on canvas. 44 by 84 inches.





l: *Flame-out (2)*, 1999. Oil on canvas. 56 by 78 inches.
r: *Stealth*, 2000. Oil on canvas. 26 by 36 inches.

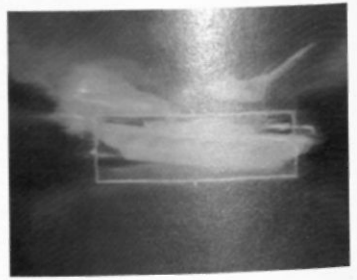


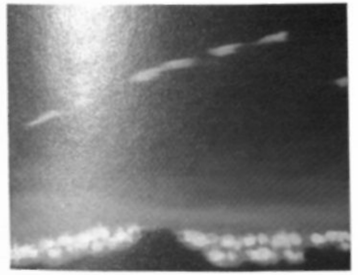
PANSPECTRON
Manuel De Landa

> *The camp was to the rather shameful art of surveillance what the dark room was to the great science of optics.*[1]
> Michel Foucault

The science of optics and the art of surveillance developed for a while following separate paths. As with most branches of physics the former developed through the interaction of theory and experiment, of mathematical models of the behavior of light and technological devices for the production of images. The latter, on the other hand, evolved in the more concrete realm of military practice as a means to recruit light and press it into service as a key component of a system of discipline through observation. First the military camp, then a series of more permanent architectural structures, prisons, schools, factories, barracks and hospitals, became veritable "behavioral microscopes," where a precise use of light, and an analytical disposition of bodies, allowed the behavior of human beings to be studied and controlled. Foucault uses the name of a famous prison project, the Panopticon, as a general term to refer to these behavioral microscopes, stressing the fact that it has multiple applications: "it serves to reform prisoners, but also to treat patients, to instruct schoolchildren, to confine the insane, to supervise workers, to put beggars and idlers to work."[2]

The different embodiments of the Panopticon were meant to produce images only in the phenomenal field of the observers, whether these were drill sergeants, shop foreman, teachers or doctors. In this regard, with the exception of the recently added video surveillance cameras, these buildings did not contribute much to the ever expanding increase in the population of permanent images. Military practice, however, had another dimension which did intensify this proliferation. This other dimension involved not the need to control the behavior of soldiers in peace time but the need to study the behavior of enemy forces during war time, and affected the evolution not of architectural structures but of flying platforms and imaging devices.





This other evolutionary line of development may be said to have begun in the late eighteenth century with the use of balloons to position sketch artists above the battlefield, as was performed by Napoleonic armies at the siege of Mantua, and continued later on in the American Civil War and the Franco-Prussian War of 1870-1871. During World War I, the use of airplanes and of photographic cameras became standard practice, and techniques for the comparative analysis of the resulting images opened up a new chapter in the development of the art of surveillance. As one author puts it, these techniques "involved comparing pictures of the same target that were taken on successive days or weeks in order to spot such changes as troop buildups, the laying of railroad tracks, and other indications of enemy intentions...Aerial reconnaissance had assumed mammoth proportions by the autumn of 1918. During the Meuse-Argonne offensive that September, for example, fifty-six thousand aerial reconnaissance prints were delivered to various U.S. army units within a four-day period. The total number of prints produced between July 1, 1918, and Armistice Day the following November 11 came to 1.3 million."[3]

This proliferation of images became even more intense during World War II, the first armed conflict in which science became directly connected to the war

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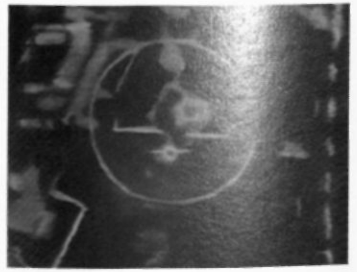
1) Michel Foucault. *Discipline and Punish.* (New York: Vintage Books, 1979). Page 172.

2) Ibid. Page 205.

3) William E. Burrows. *Deep Black: Space Espionage and National Security.* (New York: Random House, 1986). Pages 34-36.

machine, and then during the Cold War as the flying platform evolved into the spy satellite and imaging devices broke away from their traditional confinement to the optical region of the electromagnetic spectrum. Some imaging devices, X-Ray machines, had already taken advantage of the nineteenth century discovery that visible light constitutes but a small portion of this spectrum. Unlike visible light, X-Rays have a very short wavelength (the distance between the peaks of successive waves), a property which allows them to penetrate most objects, and thus, to create images of their interior structure. At the opposite end of the spectrum, radio waves can reach wavelengths of one kilometer, a property that is exploited by radio telescopes to image distant objects.

But for the purposes of military imaging spectral regions close to the optical one, particularly infrared radiation, are particularly valuable. Unlike ordinary cameras, which capture visible radiation which is bounced off objects, infrared cameras can detect radiation which is emitted by objects in the form of heat, converting thermal differences into a visual representation of a scene. This allows the production of images at night, as objects "illuminate" themselves by their own emitted heat. Furthermore, using several sensors, each picking a different portion of the spectrum (in a technique called "multi-spectral scanning"), infrared data may be combined with other data to defeat camouflage, in effect, imaging the very materials an object is made of by the way each of them interacts with radiation: "Plywood painted green might look like grass in a standard color photograph shot from high altitude, but multi-spectral scanning imagery would show it to be what it was: a coat of paint. By the same token [it can] differentiate between aluminum, steel and titanium so that analysts can determine the composition of Soviet aircraft..."[4]



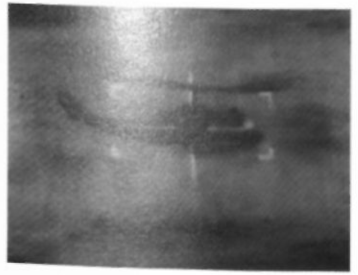
Previous pages, [illegible]
Kill Box, 2001, [illegible] by 48 inches.

Night Vision, [illegible] 26 by 32 inches.

These pages, [illegible]
Smart Painting [illegible] 2001.
26 by 32 inches.

Autonomic, [illegible] by 76 inches.

All oil on canvas.



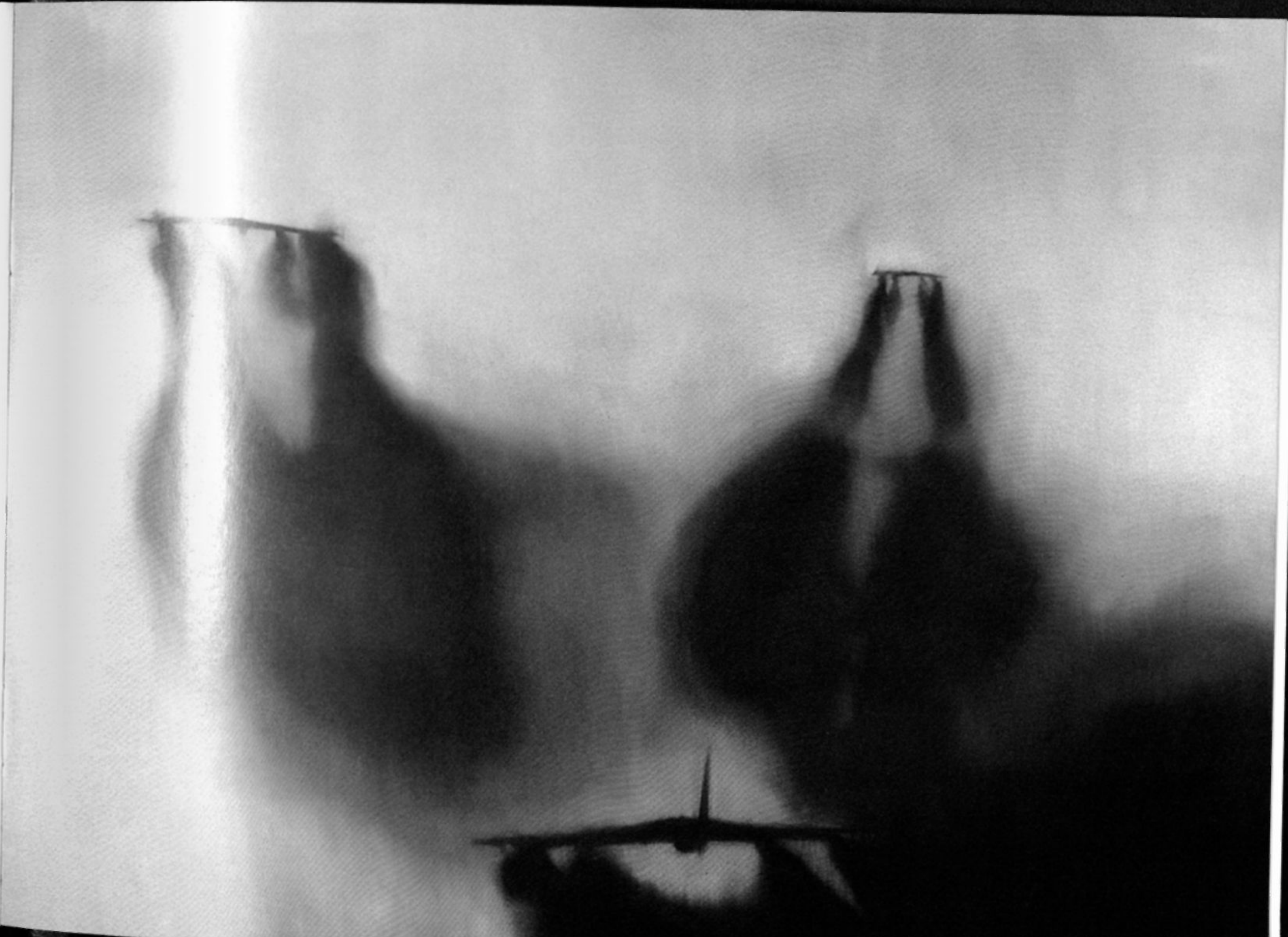
A different use of the wider spectrum is to convert one type of radiation into another in which certain operations may be performed. For example, visible light may be converted into electricity, intensified and multiplied in this electrical form, then reconverted back to greatly amplified light. In this way a small number of particles of light bouncing off an object at night, a number which by itself would be unable to produce an image, may be used to create a much larger number and generate the characteristic green images of night-vision goggles. Both night-vision devices as well as infrared imaging devices are now used in a civilian context by law enforcement agents, despite the fact that the legitimacy of this usage is still controversial, as shown by a recent Supreme Court debate on the constitutionality of using infrared sensors to detect indoor drug-growing. Whatever the outcome of this debate it seems clear that today the devices developed for war time are starting to influence the art of surveillance as applied in peace time. To this extent, we may be moving from the old Panopticon to a wider Panspectron.

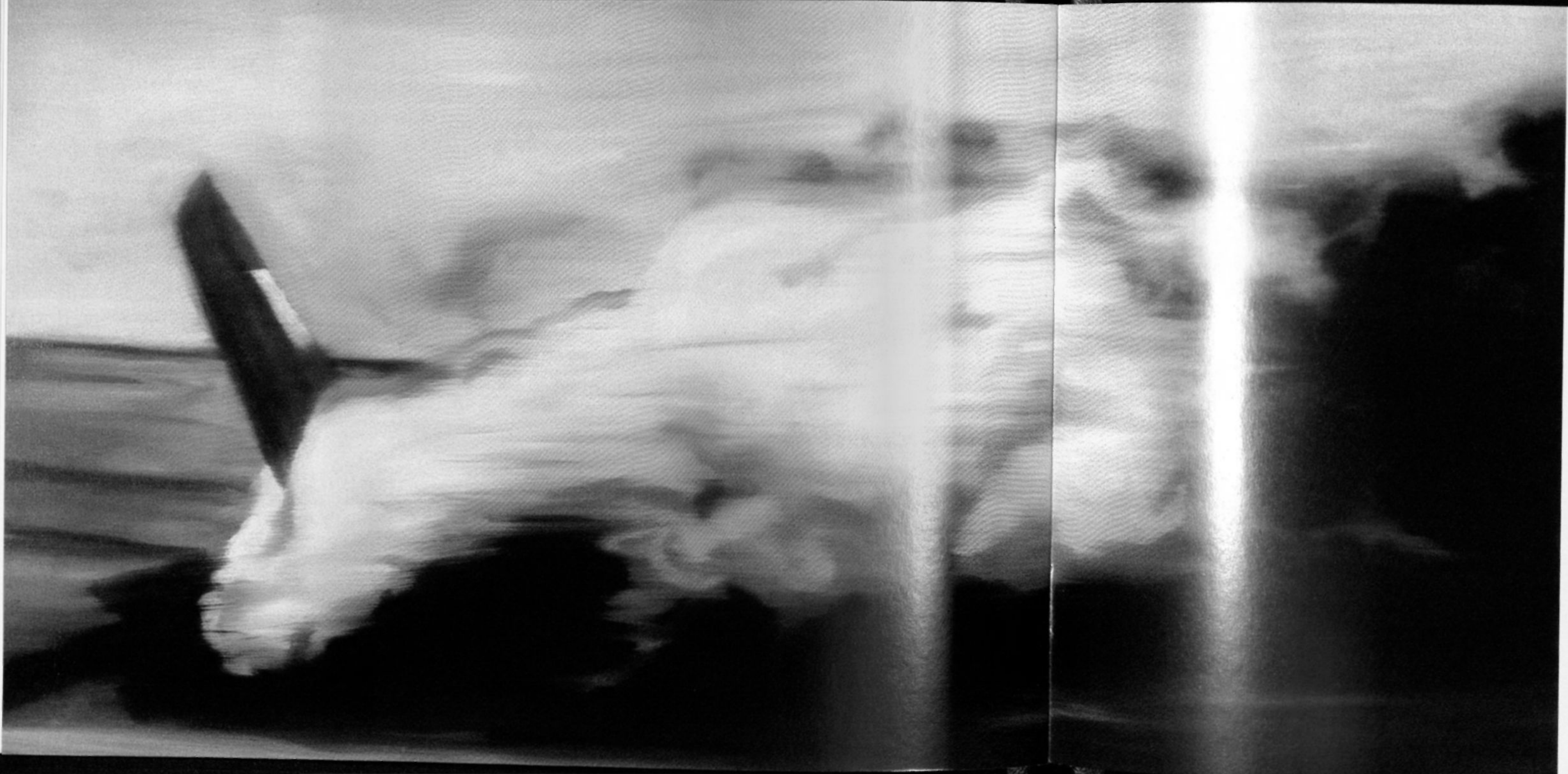
It is this rapidly expanding world of panspectral images that Joy Garnett has made her home. Whether one considers her oil paintings of night vision images, her renderings of the images which smart weapons themselves "see," or merely her portrayals of atomic bomb explosions or brightly lit military accidents, she seems to have an intense relation with radiation itself, no matter what portion of the spectrum it comes from. In a world witnessing a veritable population explosion of imagery it is reassuring that some of our most talented artists have decided to immerse themselves in this new jungle, bringing a critical gaze to bear on its contents.

Manuel De Landa, New York, 2001

4) Ibid. Page 23

l: *Speed of Sound*, 2000. Oil on canvas, 26 by 36 inches.
r: *Ex Trails*, 2000. Oil on canvas, 60 by 78 inches.





Crash, 1999. Oil on canvas. 44 by 84 inches.

resume

Joy Garnett

1989-91 MFA, The City College of New York, New York
1985-87 L'École Nationale Supérieur des Beaux Arts, Paris

solo exhibitions

2001 *Rocket Science*, **Debs & Co.**, New York City
1999 *Buster-Jangle*, **Debs & Co.**, New York City

group exhibitions

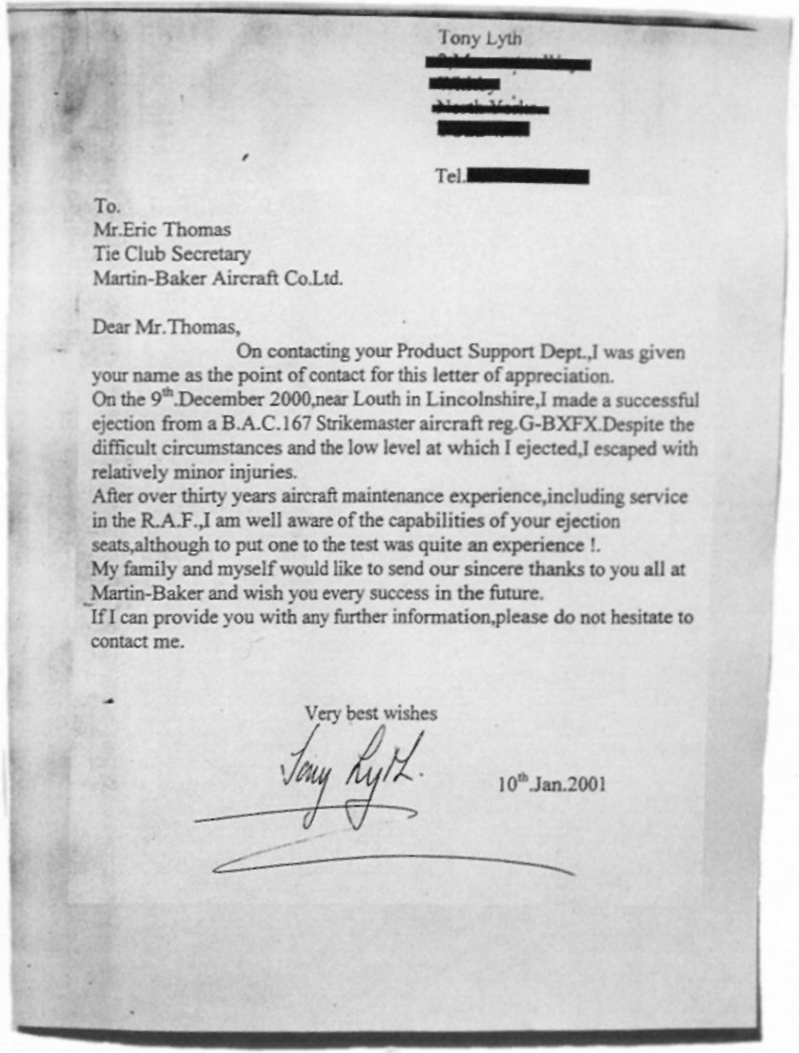
2000/01 *The UFO Show*, curated by Barry Blinderman and Bill Conger
originating: **Illinois State University Galleries**, Normal, Illinois
travels to: **Arts & Science Center**, South East Arkansas, **University of Colorado Galleries**, Colorado Springs
2000 *Dystopia and Identity in the Age of Global Communications*, curated by Cristine Wan, **Tribes Gallery**, New York City
N01se, curated by Adam Lowe; **Wellcome Gallery**, London, England; **Kettles Yard,** Cambridge, England
1999 *Persuasion*, curated by Lea Freid and Roxanna Marcocci, **Lombard/Freid Fine Arts**, New York City
Stars of Track and Field, **Debs & Co.**, New York City
1998 *Bioethics: Thresholds of Corporal Completeness*, curated by Deborah Edwards, **Side Street Projects**, Santa Monica, CA
Ground Control, **Lombard/Freid Fine Arts**, New York City
Summer Show, **Debs & Co.**, New York City
1996 **Lipton-Owens Co.**, at The Art Exchange Show, New York City

reviews

2001 *Reinventing the Landscape*, **Art News**, Hilarie M. Sheets, February, 2001. Reproduction.
2000 *Exploring sci-art: the final frontier*, **Lancet**, Kelly Morris, April 22, 2000.
UFO art show has layers of meaning, **The News-Gazette** (Normal, IL), Melissa Merli, March 12, 2000.
1999 *Joy Garnett at Debs & Co.*, **Art in America**, Christopher Phillips, October. Reproduction.
Joy Garnett at Debs & Co., Galleries-Chelsea, **The New Yorker**, editors, June 7, 1999.
Joy Garnett, "Buster Jangle," **Time Out/New York**, Tim Griffin, June 3-10, 1999. Reproduction.
Disaster Imagery in Contemporary Painting, **NY Arts**, Merry Meikle, June, 1999. Reproduction.
In Brief: Joy Garnett at Debs & Co., Art Guide, **The New York Times**, Ken Johnson, May 28, 1999.
1998 *Examining Consequences of Medical Advances*, Art Reviews, **The Los Angeles Times**, December 11, 1998.
Ground Control, Art Guide, **The New York Times**, Ken Johnson, July 24, 1998.

images, writings, & catalogues

2001 **Interaction: Artistic Practice in the Network**, edited by Amy Scholder with Jordan Crandell, Eyebeam Atelier/D.A.P., New York.
2000 **UFO**, exhibition catalogue, essays by Carlo McCormick, Rudy Rucker, *et al*, Illinois State University Galleries.
N01se: Information & Transformation, exhibition catalogue with essays by Bruno Latour, Umberto Eco, Bruce Sterling, Simon Schaffer, Peter Galison, *et al.* Kettle's Yard, Cambridge, 2000.
N01se, exhibition catalogue edited by Denna Jones, The Wellcome Trust, London, 2000.
1999 *Buster-Jangle*, artist's multiple, published by Debs & Co., May, 1999.
"Romancing the Sky: Cosmic Contemplation at the Montreal Museum of Fine Arts", **Artnet.com**
Art of the X-Files, introduction by William Gibson. Look*out* in association with Harper Prism, New York
First Pulse: A Personal Journey in Cancer Research, Dr. Merrill Garnett, ed. Bill Jones. First Pulse Projects with Garnett McKeen Laboratory, Inc.
"Think Again!: Postmodernity, Zen, and the Cyberpunk Soft Drink," **ArtByte: The Magazine of Digital Arts**, Vol.1, no.5, Dec.-Jan. 1998-99.



Tony Lyth
[redacted]

Tel.[redacted]

To.
Mr.Eric Thomas
Tie Club Secretary
Martin-Baker Aircraft Co.Ltd.

Dear Mr.Thomas,
On contacting your Product Support Dept.,I was given your name as the point of contact for this letter of appreciation.
On the 9th.December 2000,near Louth in Lincolnshire,I made a successful ejection from a B.A.C.167 Strikemaster aircraft reg.G-BXFX.Despite the difficult circumstances and the low level at which I ejected,I escaped with relatively minor injuries.
After over thirty years aircraft maintenance experience,including service in the R.A.F.,I am well aware of the capabilities of your ejection seats,although to put one to the test was quite an experience !.
My family and myself would like to send our sincere thanks to you all at Martin-Baker and wish you every success in the future.
If I can provide you with any further information,please do not hesitate to contact me.

Very best wishes

Tony Lyth

10th.Jan.2001

sources

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http://www.fas.org/man/index.html

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http://www.fas.org/spp/51L.html

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http://www.fas.org/man/dod-101/sys/smart/index.html

FAS - Kosovo Operation Allied Force Gun Camera Imagery
http://www.fas.org/irp/imint/kosovo-01.htm

PSYOPs Leaflets dropped by NATO airplanes above Kosovo and Serbia
http://www.fas.org/man/dod-101/ops/docs99/990507-leaflets.htm

Federation of American Scientists Intelligence Resource Program - IMINT Radar
http://www.fas.org/irp/imint/radar.htm

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http://www.x20.org/thermal/FLIR.htm

The Complete, Unofficial TEMPEST Information Page http://www.eskimo.com/~joelm/tempest.html

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Special Operations.com
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http://www.arng.ngb.army.mil/VisualInformation

American Gulf War Veterans Association
http://www.gulfwarvets.com/

Desert Storm Journal & Photo Gallery

Aviation Safety Network
http://aviation-safety.net/index.shtml

GlobeMastr Air Extreme
http://www.globemaster.de/airextreme

TWA Flight 800 Video Gallery
http://www.cnn.com/US/9707/twa.800

Concorde & French Aircraft Pictures a
http://home.hiwaay.net/~dgs/concorde

Airforce Link - Gallery of Bombers
http://www.af.mil/photos/bombers.sh

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Photos http://www.dfrc.nasa.gov/galle to/

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US Naval Historical Center
http://www.history.navy.mil/

NavSource Naval History Image Archi

Manuel De Landa
is a philosopher, independent filmmaker, and programmer who has lectured and written extensively o theories of nonlinear dynamics and artificial intelligence. His work has been of critical interest to artists working with networks as medium. He is the author of three philosophy books, *War in the Age of Intelligen Machines* (1991), *A Thousand Years of Nonlinear History* (1997), and *Intensive Science and Virtual Philosoph* (2002), as well as of many philosophical essays published in various journals and collections. He teaches tw seminars at Columbia University, School of Architecture: "Philosophy of History: Theories of Self-Organizatio and Urban Dynamics," and "Philosophy of Science: Thinking about Structures and Materials." He is a membe of the School of Social Science at the Institute for Advanced Study, Princeton

Bruce Sterling,
author, journalist, editor, and critic, was born in 1954. He has written eight science fiction novels and three short story collections, including *Globalhead* (1992), *Heavy Weather* (1994), *Holy Fire* (1996), and *Zeitgeis* (2000). He edited the anthology *Mirrorshades*, the definitive document of the cyberpunk movement. He also wrote the nonfiction book *The Hacker Crackdown: Law and Disorder on the Electronic Frontier* (1992), available on the Internet. He has written regular columns on popular science and literary criticism for *The Magazine of Fantasy and Science Fiction*, *Interzone*, and *Science Fiction Eye*. He has appeared in ABC's Nightline, BBC's The Late Show, CBC's Morningside, on MTV, and in *Wired*, *Wall Stree Journal*, *World Art*, *Time*, *Newsweek*, *Details*, *Nature*, *The New York Times*, *Der Spiegel*, and other equally improbable venues. He lives in Austin with his wife and two daughters.

Front cover: *Rocket Science*, 2001. Oil on canvas. 28 by 38 inches. Inside front cover: *Cluster*, 2000. Oil on canvas. 60 by 78 inches
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